



## Prevention Research Centers

### Asthma Intervention for Children in Central Harlem Shows Great Promise

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#### Background

Asthma prevalence and mortality have been increasing in the United States but the causes are incompletely understood. Some asthma risk factors are known or suspected to be more prevalent in poor, urban communities, where low-quality housing, roach infestation, tobacco smoke exposure, and other conditions contribute to a high asthma burden.

#### Context

The Harlem Children's Zone, Inc. (HCZ), is a nonprofit, community-based organization, started in 1970 in collaboration with several public and private organizations, that has been widely acclaimed for its intensity and scope. Since 1977, the organization has run the Harlem Children's Zone Project (HCZP) to improve children's intellectual, emotional, and physical health. The HCZP now operates in a 60-block area in Central Harlem. In 2001 the Department of Pediatrics at Harlem Hospital Center joined forces with HCZ to reduce the burden of asthma on children and their families in Harlem. The Harlem Health Promotion Center (a CDC Prevention Research Center) collaborates with these lead partners in conducting a multifaceted and rigorous evaluation of the project's impact, consisting of surveillance of asthma and environmental indicators, qualitative assessment through focus groups and one-on-one interviews, and spatial analysis through development of a geographic information system.

#### Methods And Results

Every child under 13 years of age living or attending school in the HCZP area or participating in any of the HCZ programs was eligible for asthma screening (a symptom questionnaire completed by parents, sometimes followed by a physical examination of the child by a health professional). Participation rates in the screening ranged from 66% to 100% across sites. Of the 3,132 children screened so far, 982 (31%) show signs or symptoms of asthma. Children having the greatest number of recent symptoms were given highest priority for enrollment in an intensive asthma management intervention based out of Harlem Hospital Center. Children enrolled in the program receive medical care at the hospital or other health care sites in Harlem and surrounding neighborhoods. A multidisciplinary team (community worker, social worker, and nurse) delivers educational, environmental, social, legal, and medical services. During home visits, scheduled at 3-month intervals, the team monitors progress and reinforces the families' knowledge and skills in asthma management and self-care. The program staff works with the medical providers of enrolled children to ensure that optimal asthma management strategies are used. In addition, information about the child's indoor environment is given to his or her primary care provider after each home visit.

Over 18 months of follow-up, substantial and statistically significant improvements were documented for the children enrolled in the program. Significant improvements included more than halving school absenteeism for any reason (from 34% to 16%) and for asthma in particular (from 23% to 8%). Emergency department and unscheduled physician visits significantly declined to less than one-quarter (from 35% to 8%), as did hospitalization (from 8.6% to 0%). Significantly increased use of effective asthma management strategies was also noted: use of a spacer device<sup>†</sup> more than doubled (from 41% to 96%), adherence to preventive medication on a daily basis increased by nearly two-thirds (from 32% to 52%), development of an asthma management plan tripled (from 20% to 60%), and possession of a peak flow meter quadrupled (from 22% to 92%).

#### Harlem Children's Zone Asthma Initiative

- Comprehensive approach includes medical care, home visits, and monitoring of the home environment
- Multidisciplinary team delivers educational, environmental, social, legal, and medical services
- Preliminary data show significant reductions in participants' school absenteeism, emergency department visits, and hospitalization as well as significantly increased use of effective asthma management strategies

## Consequences And Potential Impact

These preliminary data strongly suggest that the program is effective in improving asthma management among enrolled children. Because the program is based on a comprehensive approach, simultaneously implementing multiple interventions known to reduce asthma morbidity, its substantial success over such a short interval is credible. Expansion of the Harlem Children's Zone Asthma Initiative to include all 982 children identified with asthma is planned, as is expanded scope of services to be offered by engaging additional agencies in the collaboration, including the New York City Department of Health and Mental Hygiene, the New York City Department of Education, and the New York City Health and Hospitals Corporation.

Whether the approach described here is effective in other settings of urban poverty, which do not have the benefit of community-based organizations as ambitious and energetic as the HCZ, should be investigated. If effective in other settings as well, such an intervention could meaningfully reduce costly use of inner-city hospitals, improve school attendance, and improve the quality of life of thousands of this nation's most vulnerable children and families affected by asthma.

## References

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† A spacer device helps deliver inhaled medications deep into the lungs for effective relief of asthma symptoms.

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